Serial No.: 09/698,800

AMENDMENTS IN THE CLAIMS:

1. (Currently Amended) A method of bonding an optical fiber having a coating to a metallic element using a glass fixative preform having a low melting point of less than 480°C, the method comprising the steps of:

positioning a glass preform ~~immediately~~ adjacent to an end portion of the optical fiber and the metallic element, the coating having been removed from said end portion; and

inducing current flows in the metallic element ~~in the region of~~ close to the preform,

~~to generate~~ generating sufficient heat by said current flows in the metallic element to melt the preform ~~whilst not melting the~~ without thermally damaging any of the ~~adjacent~~ coating ~~of~~ that has not previously been removed from the optical fiber, and

causing molten material from the preform to flow along the optical fiber by capillary action to provide a relatively large bonding area ~~and~~ to thereby form a bond of high strength between the optical fiber and the metallic element on subsequent cooling of the molten material.

2-4. (Canceled)

5. (Currently Amended) A method as claimed in Claim 1, wherein, in the heat generation step, an induction heater is positioned close to the preform so as to cause said current flows in the metallic element to melt the preform.

6. (Canceled)

7. (Currently Amended) A method of bonding an optical fiber to a metallic element using a glass fixative preform having a low melting point of less than 480°C, the method comprising the steps of:

Serial No.: 09/698,800

positioning a glass preform ~~immediately~~ adjacent to an end portion of the optical fiber and the metallic element, the coating having been removed from said end portion; and

inducing current flows in the metallic element ~~in the region of~~ close to the preform,

~~to generate~~ generating sufficient heat by said current flows in the metallic element to melt the preform ~~whilst not melting the~~ without thermally damaging any of the ~~adjacent~~ coating ~~of~~ that has not previously been removed from the optical fiber, and

causing molten material from the preform to flow along the optical fiber by capillary action to provide a relatively large bonding area to thereby form a bond of high strength between the optical fiber and the metallic element on subsequent cooling of the molten material,

further including the step of removing non-bonding coating material from the surface of the optical fiber to expose a portion of the optical fiber to be bonded.

8. (Currently Amended) A method of bonding an optical fiber to a metallic element using a glass fixative preform, the method comprising the steps of:

positioning a glass preform ~~immediately~~ adjacent to the optical fiber and the metallic element; and

inducing current flows in the metallic element ~~in the region of~~ close to the preform

~~to generate~~ generating sufficient heat by said current flows in the metallic element to melt the preform, and

causing molten material from the preform to flow along the optical fiber by capillary action to provide a relatively large bonding area to thereby form a bond of high strength between the optical fiber and the metallic element on subsequent cooling of the molten material,

wherein, in the step of heating the preform, the preform is heated to a temperature in the range 280°C to 480°C.

Serial No.: 09/698,800

9. (Currently Amended) A method of bonding an optical fiber to a metallic element using a glass fixative preform, the method comprising the steps of:

positioning a glass preform ~~immediately~~ adjacent to the optical fiber and the metallic element; and

inducing current flows in the metallic element ~~in the region of~~ close to the preform ~~to generate~~ generating sufficient heat by said current flows in the metallic element to melt the ~~preform~~perform, and

causing molten material from the preform to flow along the optical fiber by capillary action to provide a relatively large bonding area to thereby form a bond of high strength between the optical fiber and the metallic element on subsequent cooling of the molten material,

wherein, in the step of heating the preform, the preform is heated to a temperature in the range 320°C to 370°C.

10-34. (Canceled)

35. (Previously Presented) A glass material bond formed between an optical fibre and a metallic element with a glass fixative, the bond having been formed by positioning a glass preform adjacent the optical fiber and the metallic element and inducing current flows in the metallic element to generate sufficient heat to melt the perform, wherein the glass fixative composition includes all of the following: PbO; PbF_2; Nb_2O_5; CuO; Bi_2O_3; Fe_2O_3; ZnO; TiO_2; Al_2O_3; B_2O_3; SiO_2; and CaO.

36. (Previously Presented) A glass material bond formed between an optical fibre and a metallic element with a glass fixative, the bond having been formed by positioning a glass preform adjacent the optical fiber and the metallic element and inducing current flows in the metallic element to generate sufficient heat to melt the preform, wherein the glass fixative composition includes the following constituents in the following proportions:

PbO 60%wt to 65%wt; PbF_2 2%wt to 5%wt; Nb_2O_5 2%wt to 5%wt; CuO 0.5%wt to 1.5%wt; Bi_2O_3 6%wt to 7%wt; Fe_2O_3 2%wt to 3%wt; ZnO 2%wt to 3%wt; TiO_2 5%wt to 7%wt; Al_2O_3 0.1%wt to 0.3%wt; B_2O_3 2%wt to 3%wt; SiO_2 0.1%wt to 0.4%wt; CaO 1% to 1.5%wt.

37-38. (Canceled)

Add the following new claims:

39. (New) A structure comprising a bond formed between an optical fiber and a metallic element with a glass fixative having a low melting point of less than 480°C, wherein the metallic element comprises a nozzle extending through a wall of a package containing an optical component, and the optical fiber extends through the nozzle such that an end of the optical fiber within the package is optically coupled to the optical component, the bond being between an end portion of the optical fiber from which the coating has been removed and the nozzle and having been formed by positioning the glass fixative adjacent the optical fiber and a constricted portion of the nozzle and inducing current flows in the nozzle to generate sufficient heat to melt the glass fixative without thermally damaging any of the coating that has not previously been removed from the optical fiber and cause molten material from the glass fixative to flow along the optical fiber by capillary action to provide a relatively large bonding area to thereby form a bond of high strength between the optical fiber and the nozzle on subsequent cooling of the molten glass fixative.

40. (New) A structure as claimed in Claim 39, wherein the glass fixative includes a lead oxide.

41. (New) A structure as claimed in Claim 39, wherein the glass fixative includes at least one constituent taken from the group including: lead fluoride, and at least one

Serial No.: 09/698,800

oxide of: niobium, copper, bismuth, iron, zinc, titanium, aluminum, boron, silicon, and calcium.

42. (New) A structure as claimed in Claim 39, wherein the glass fixative has a melting point between 280°C and 410°C.

43. (New) A structure as claimed in Claim 39, wherein the glass fixative has a softening point between 320°C and 370°C.

44. (New) A structure as claimed in Claim 39, wherein the glass fixative has a transition temperature between 280°C and 300°C.

45. (New) A structure as claimed in Claim 39, wherein the glass fixative has a thermal coefficient of expansion of 6.5 to 8.5 p.p.m./ °C.

PAGE 6/11 * RCVD AT 5/11/2004 9:14:39 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:216 621 6165 * DURATION (mm-ss):03-20